



Nitrogen excretion in fattening beef in conventional vs. extensive and sustainable farm systems



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INTRODUCTION

Extensive and sustainable productive systems, as the organic one, have the reputation to have several positive effects on environmental and socio-economic aspects, but also some negative ones could be pointed out, especially regarding rearing and nitrogen efficiency.

RESULTS

The conventional rearing system showed better productive indices (ADG, $P < 0.01$; FCR, $P < 0.01$; N-diet g/d) and lower environmental impact (N-excretion; N-efficiency, $P < 0.01$) than the extensive ones.

Moreover, the number of animals allowed per surface unit in the organic farming could considerably reduce the soil nitrogen supply, causing a progressive reduction of soil fertility and organic matter content especially in the Mediterranean country for their soil and climatic conditions.

CONCLUSION

Livestock show several environmental functions, both positive and negative, changing in accordance to intensity, rearing systems and geographical areas. So the higher N excretion in extensive farm system should be evaluated considering all functions developed from livestock, especially in marginal areas subject to environmental risk and socio-economic decline.

MATERIALS AND METHODS

- **animals:** 20 Piemontese male calves (10 conventional, C, and 10 extensive, E);
- **feeding system:** conventional (2 kg/d of hay forage and 3-8 kg/d of concentrate) or extensive (3.5-8 kg/d of hay forage, 60% of DM intake, and 2-3 kg/d of concentrate);
- **period:** from 200 to 550 kg of live weight (from 6 to 16 or 20 months of age);
- **data:** monthly individual weights (LW), average daily weight gain (ADG), daily feed consumption (DFC), and feed conversion rate (FCR);
- **nitrogen balance:** 2.7 % of weight gain (ERM/AB-DLO, 1999);
- **statistics:** ANOVA, according to treatment.

LIVE PERFORMANCES AND NITROGEN BALANCE

	C	E
ADG (kg LW/d)	0.96 A	0.85 B
FCR (kg DM/kg LW)	6.41 B	9.18 A
N-diet (g/d)	131	140
N-excretion (g/d)	1.77	1.80
N-efficiency (%)	19.91 A	16.50 B

A, B: $P < 0.01$

